MAY, 1886.

The monthly meeting of the Society was held on Tuesday, May 18, at the Museum. Lieut. C. E. Beddome (I.N.) in the chair.

The following gentlemen were elected Fellows of the Society, viz.:—Rev. J. Dillon, curate at St. George's, Lieut. Farrell, and Mr. E. R Ash.

Owing to important official engagements the hon. secretary (Hon. Dr. Agnew) was unable to be present. The assistant secretary brought forward the usual returns, viz.:—

List of additions to the library during the month of April :—

A Synopsis of the Queensland Flora, containing both the Phœnogamous and Cryptogamous plants. First supplement by F. M. Bailey. Pamphlets.—From the author.

Annals and Magazines of Natural History.—March.

Annales de la Société Malacologique de Belgique. Tome XV. Deuxiéme Série. Tome V. Fascicule 1. Année 1880.—From the Society.

Annales de la Société Royal Malacologique de Belgique. Tome XIX. Troisiéme Série. Tome IV. Anniel884.—From the Society. Annalen des K.K. Naturhistorischen Hofmuseums redigirt, Von Dr. Franz, Ritter Von Hauer. Band 1, No. 1.—From the Society.

Athenæum, February.

Boleteim da Sociedade de Geographia de Lisboa, 5th Serie. No. 7, 8.—From the Society.

Catalogue of the indigenous woods contained in the Queensland Court, Colonial and Indian Exhibition of 1886, with a brief popular description of the trees, their distribution, qualities, uses of timber, etc., etc.—By F. M. Bailey, F.L.S.

Classified index of the indigenous and nauturalised plants of Queensland, with an alphabetical index of genera of the first part of the work. Pamphlets, by F. M. Bailey, F.L.S.— From the author.

Catalogue of the Fossil Mammalia in the British Museum (Natural History), Pt. II. containing the order (Ungulata, sub-order Artiodactyla). —By R. Lydekker, B.A., F.G.S.

Catalogue of the Palæozoic Plants in the British Museum.

Catalogue of the lizards in the British Museum (Natural History, second edition), by George Albert Boulenger, Vol. II. Iguanidæ, Xenosauridæ, Zonuridæ, Anguidæ, Anniellidæ, Helodermatidæ, Varanidæ, Xanthusiidæ, Teridæ, Amphisbænidæ (bound.—From the Trustees British Museum.

Geological Magazine. April.

Imperial Federation, No. 3, Vol. I. March, 1886.—From the Editor.

Journal of the Society of Arts, Feb. 5, 12, 19, 26.

Memoirs of the Geological Survey of India. Palæontologia Indica, Sec. XIII. Salt-range Fossils, by William Waagen, Ph.D. 1. Productus—Limestone Fossils. 5. Bryozoa—Annelida—Echinodermata, with plates. LXXXVII—XCVI.—From the Dept.

Nature. February.

On the comparative temperature of the Northern and Southern Hemispheres of the Earth—On the geometrical construction of the cell of the honey bee—On the figures of the Planets. By Prof. Henry Hennessey, F.R.S. Pamphlets.—From the Author.

Proceedings of the Linnean Society of New South Wales. Vol. X., Pt. 4. Also record of Proceedings.—From the Society.

Proceedings and Transactions of the Royal Society of Canada for the year 1884. Vol. II., bound.—From the Society.

Proces-Verbaux des Seances de la Société Royale Malacologique de Belgique. Tome XIV. Annee 1885.—From the Society.

Société deGéographie, No. 5-6, 1886.—From the Society.

PAPERS.

Mr. Bastow then read a paper on the *Peronospora infestans*, or potato disease, in which he pointed out the life history of this destructive fungus. Having alluded to Messrs. Cooke, Berkeley, De Bary, and more especially to Mr. W. G. Smith as having worked most assiduously on this subject. He stated that when the potato plant is attacked by the fungus the leaves assume a pale tint, become spotted, and are covered with white mealy patches on the under surfaces. The plant quickly withers, and the spores formed within it spread destruction over the whole field. Examined by the microscope the white patches present a beautiful appearance, something like a miniature crystal forest, with each branch bearing fruit. When the fruit cases open, *zoospores* are scattered right and left, these have the power of motion, and working their way into the fluids of the plant, their cilia drop off, and the *zoospore* (to all appearances a minute member of the animal kingdom) at once begins to throw out *mycelium* threads and fertile stems, once more bearing fruit. They propagate also by resting spores, these resting spores being *oginia* that have been fertilised by having almost wholly absorbed *antheridia*. Slides, containing specimens of the potato plant infested with this fungus, were shown under the microscope with an eighth of an inch objective. The fertile stems had all the appearance of small hyaline trees, the branches being simple or with short branchlets. The *zoospores* could be made out as they rested in their fruit cases. De Bary states that 19,620 of these *zoospores* are contained in one square line, so that there need be no surprise that acres of potatoes are destroyed in so short a space as 48 hours.

Mr. SHOOBRIDGE said he never knew, in his experience, of that disease in Tasmania.

Mr. JOHNSTON asked if this disease had appeared to any extent in Tasmania.

Mr. SHOOBRIDGE said it had not appeared in his district, and he had not heard of it having broken out in the colony.

The CHAIRMAN: I don't think it is known in this colony.

Mr. STEPHENS: It is to be hoped that it never will be.

Mr. SHOOBRIDGE: It is similar to the Irish blight.

Mr. BASTOW: Yes.

Mr. SHOOBRIDGE said that the only disease he knew in Tasmania affected the tubers only.

Mr. STEPHENS said there was a disease among the potatoes in the colony which required investigation, because its history and origin was not very well known.

Mr. JOHNSTON suggested that Mr. Bastow be asked to examine some of these diseased potatoes, and bring a paper before the society on the subject.

Mr. STEPHENS said that a peculiar characteristic of this disease was that it was always accompanied by a peculiar change in the weather, weakening the plant and rendering it more susceptible. He was in England all through the potato blight, and he found that the only soil where potatoes would grow free of disease was a sandy ground. The only place which he knew where the potato blight did not extend was on a cultivated beach at Morecambe Bay, which was little more than sand, but, of course, was strongly impregnated with salt. He hoped, however, that they would not get the disease in Tasmania.

Mr. JOHNSTON said that in the north highlands of Scotland many large tracts of land which had at some recent period been covered by the sea were planted with potatoes. The potatoes grew better on a shingly beach than anywhere else, and those grown inland were found to be more affected with disease.

Mr. SHOOBRIDGE said that might be accounted for by more silica being taken up, and causing a hard substance on the leaf. The same fact was noticed with rust in wheat, and where there was more silica in land the plant was harder, and was not affected in the same way.

Mr. BASTOW said that he first studied peronospora infestans when he was in Manchester. They had a large quantity of manure to get rid of, and wanted to get a market for it. The soil round Manchester was very heavy, and the disease at that time was creating very great havoc among the potatoes. They allowed a few of the market gardeners to try this manure, and it was found that it was better than horse dung, and the potatoes were comparatively free from disease.

LONGFORD COAL.

An interesting paper was read by Mr. R. M. Johnston, F.L.S., on the Longford coal. The paper was illustrated by diagrams, and he dealt with the various seams worked up to the present, giving analysis prepared by Mr. W. F. Ward, Government analyst, of a sample of the coal.

Discussion took place, and Mr. STEPHENS spoke favourably of the Norwich coal measures; but deprecated the waste of money in boring for coal without sufficient data to go upon, or any reasonable prospect of satisfactory result.

EXPLANATION.

Mr. Abbott, superintendent of the Botanical Gardens, wrote stating that a telegram from Melbourne that appeared in *The Mercury* of the 6th April *re* evidence given by him before the Royal Commission on Vegetable Products, "viz., that fruit-growing in Tasmania was on the decline," was incorrect. The answer regarding the fruit-growing in Tasmania, given by him, was as follows :—That we grew fruit extensively. That orchard ground had a special value. That the area under fruit had increased greatly during the last few years. That fruit trees were still being planted largely. That the ordinary jam-making was the only mode of preserving at present practised, the American process of drying would no doubt come in time, as over-production would lead to it. That during the last year or two there had been over-production, especially in small fruits, more particularly raspberries. That some of the older orchards were dying out, and that he was of opinion that many would do so if only on account of the codlin moth that had got such a hold of them. That except some of the districts having declared themselves to be clean, the Codlin Moth Act was at present a dead letter. That he did not think vine planting in Tasmania was on the increase except at Maria Island, where large numbers had been put in with good prospects. That no doubt some parts of Victoria would be found equally suitable for the production of fruit as Tasmania; but that, speaking as a whole or generally, he was of opinion that the hot winds would interfere with its successful production." The above from memory is the gist of the evidence given on fruit growing as applied to Tasmania.

Mr. SHOOBRIDGE said that the trees in his locality had a tendency to be very short-lived. Orchards planted 14 or 15 years ago have seriously decreased. The ends of the branches died away, and the trees were very much smaller. No amount of care, attention, or watering, appeared to keep up the fertility of the trees.

Mr. STEPHENS: Is that not caused by the ground being badly drained?

Mr. SHOOBRIDGE said no. This occurred in some of the most porous soils he knew of. There was very little difference whether there was irrigation or not.

The CHAIRMAN said there were some trees 50 or 60 years old at Sandy Bay perfectly healthy and bearing good crops.

MOUNT BISCHOFF.

Mr. STEPHENS referred to a paper read last session, written by Baron Von Groddeck, Germany, entitled, "Remarks on the tin ore deposits at Mount Bischoff," translated by Mr. G. Thureau, F.G.S. Specimens of the rock described in the paper not having been sent with the paper, Mr. Stephens stated he had received from Mr. C. P. Sprent specimens of the rock heretofore described as quartz porphyry or eurite, which he had sent to Professor Liversidge, who had kindly given him the following notes:—"I am sorry to say that I have no time just now to make analyses of them nor even sections for the microscope, and without doing both of these it is often very difficult to identify rocks, and not always then. The white rock from Mount Bischoff, which looks like a quartz porphyry, is undoubtedly a topaz rock as described by Baron V. Groddeck; the sp. gr. is far too high for a felspathic rock, and it is as rough to the touch as a trachyte, moreover it contains flourine, which is readily detected before the blowpipe. This association of topaz and tin is a very interesting one. I think topaz crystals ought to be found in the cavities of the rock. If you can set anyone to collect in the district probably interesting discoveries would be made."

NOTES AND EXHIBITS.

Mr. C. J. Atkins exhibited specimens mounted for the microscope, a fresh-water algæ (*Anacharis alsinastrum*), commonly called in England the water thyme. It is said to have been introduced in England from North America, and has since spread with such rapidity through the canals and rivers as in many instances seriously to impede their navigation. The specimens before the meeting were obtained from the pond in Franklin-square, where it appears to have taken a firm hold.

VOTES OF THANKS.

On the motion of Mr. JUSTIN BROWNE, seconded by Col. LEGGE, a vote of thanks was awarded to the various donors and the gentlemen who had furnished papers.

The meeting then terminated.

JUNE, 1886.

The monthly evening meeting of the society was held on Tuesday, June 8th; Mr. James Barnard (vice president) in the chair.

The following gentlemen were elected corresponding members:—Mr. Chas. Gould, F.G.S.; Prof. Alexander Agassiz, Curator Museum of Comparative Zoology at Harvard College, Cambridge, Mass.; Prof. Geo. W. Tryon, jun.; Conservator of Conchological Museum, Philadelphia.

List of additions to the library during the month of May:—

Annals and Magazines of Natural History, April.

Annual report of the Trustees American Museum of Natural History for the year 1885-6.—From the Trustees.

Athenæum, March.

Circulars of information of the Bureau of Education No. 1, 1884. Meeting of the International Congress at Rome in Oct., 1884, Nov. 2, 1884. The teaching, practice, and literature of shorthand by Julius